

Committee on Resources

Subcommittee on Water & Power

Testimony

***TESTIMONY SUBMITTED IN RESPONSE TO REQUEST FROM SUBCOMMITTEE
HOUSE COMMITTEE ON RESOURCES, SUBCOMMITTEE ON WATER AND POWER
CONCERNING H.R. 3267, THE SONNY BONO MEMORIAL SALTON SEA RECLAMATION ACT***

Submitted by

Michael J. Bazdarich, Ph. D.

Director, Inland Empire Economic Databank and Forecasting Center

University of California at Riverside

March 10, 1998

PROPERTIES OF MY SALTON SEA STUDY

Between October 1997 and January 1998, my Center conducted and completed a study of the economic potential of the Salton Sea. I estimated the private-sector economic benefits that could accrue to the immediate area of the Sea from its development as a water-sports recreational area, were environmental conditions on the Sea improved sufficiently to induce such development. I also briefly discussed the revenue sources that should be available to help pay the expenses of such a clean-up effort.

One initial point made in my study was that the benefits accruing from a clean-up involve both the gains accruing from an ***improvement*** of Salton Sea conditions from their current state and also the gains from the ***prevention of further deterioration*** in those conditions. That is, even the present state of the Sea cannot be maintained without remedial action, as salinity and pollution levels will otherwise continue to rise, water levels will continue to fluctuate, and so environmental conditions will continue to deteriorate. Therefore, a project which effects and maintains an improvement in Sea conditions will reap both the gains of improving conditions and also of preventing further deterioration.

In my study, the methods involved in estimating the economic benefits of an improvement in Sea conditions to a level conducive to widespread economic development of the region are fairly straightforward. Economic utilization and valuations presently can be compared to those accruing in regions with a water-sports and leisure use comparable to the potential usage of the Salton Sea. However, the study points out that a tabulation of such benefits only, again, understates the total benefit of a clean-up effort, as these do not include the benefits accruing from the prevention of further deterioration of the Sea and thus from the prevention of further diminution in the economic utility of the Sea.

The latter benefits are somewhat more difficult to quantify, since they involve a comparison of present circumstances to those that would accrue from some unknown, disaster state at some distant time in the

future. Nevertheless, my study offered two indirect methods of estimating these benefits of preventing further deterioration (alternatively, the costs of that further deterioration).

This point is also applicable to any evaluation of the public-sector or environmental benefits of the Sea. Again, my study focused on private-sector, economic benefits of a clean-up. It specifically did *not* attempt to quantify the environmental value/benefits of the Sea as a wildlife refuge, fishery, or otherwise. It similarly did not quantify the value of the Sea as a repository for agricultural run-off. With respect to these items, it might be argued that these benefits are already accruing. However, it is still the case that all these values/benefits are at risk should Salton Sea conditions continue to deteriorate. Thus the preservation of all these benefits can be credited as benefits accruing to a successful clean-up via the prevention of further deterioration of the Sea.

STUDY LIMITED TO DEVELOPABLE PROPERTY WITHIN ONE-HALF MILE OF SHORE

While my study focuses on private-sector economic benefits accruing from increased utilization of the Sea as recreational and leisure center, I attempt to ensure that those benefits would accrue in a manner compatible with the sustenance and enhancement of other, non-economic qualities of the Sea as well. Thus, my study assumes that economic development will be restricted to an area totaling only about 57% of Sea shore property. Specifically, I do not allow for any private-sector utilization of property in or adjacent to 1) the National Wildlife Refuge on the southern and eastern shores of the Sea, 2) the California State Recreational Area on the eastern shore, or 3) the Armed Forces Test Base, on the western shore. I also restrict benefit calculations to exclude Torrez-Martinez Indian Reservation lands on the northwestern shore of the Sea, as these lands may be exempt from tax levies which could be raised to finance a clean-up. (The regions considered possible for private-sector human recreational development are listed in Figure 1 of my study, reproduced and attached to this testimony.)

Besides these areas, there is currently a small duck pond area on the North shore of the sea. That region of the Sea lies closest to the Coachella Valley area and would also seem to be a prime location for human utilization of the Sea. My assumption was that the ducks there could be relocated to the southern end of the Sea and that the area in question would be available for human utilization.

In order to focus on the direct benefits accruing from a clean-up and also in order to keep the scope of the project manageable, my calculations of economic benefits were restricted to an area within one-half mile of the Salton Sea shore (within the restricted regions described above). Successful clean-up and consequent development of the region immediately surrounding the Sea would also facilitate faster-than-otherwise commercial growth in the neighboring Imperial and Coachella Valleys, not to mention properties adjacent to--but more than one-half mile from--the Sea shore. However, the methods for estimating such benefits are less straightforward than those involving Sea shore proper, and, also, limitations were set to keep the project manageable.

ASSUMPTIONS ON QUALITY OF SALTON SEA CLEAN-UP

Finally, but perhaps most importantly, my study assumed that the eventual clean-up project would be thorough and successful enough to allow the Salton Sea are to emerge as a region of comparable quality to and competitive with such water-sports-recreational areas as Lake Havasu, Bullhead City, Lake Arrowhead, and Big Bear Lake. At a minimum, such comparable quality would require a) reduction in and subsequent stabilization of Salton Sea water salinity at a level equal to or lower than that of ocean water, b) reduction in Sea water pollution and nutrient content to levels consistent and compatible with widespread use by

human swimmers, water-skiers, and boaters, and c) stabilization of Sea water levels at a state or within a range that does not provide an unreasonable threat to property constructed or improved along the shore line.

It would of course be prohibitively expensive to try to improve Sea water to the pristine state of, say, Lake Tahoe. It could be argued that any conditions short of that might be distasteful to some potential vacationers/tourists, and some have questioned whether widespread water-sports utilization will occur around the Sea under any feasible clean-up effort. These are technical questions which I cannot answer unequivocally.

However, I would point out that all the successful water-sports regions mentioned in the second paragraph preceding are man-made and so initially suffered some stigma among water-sports enthusiasts. Furthermore, Lake Havasu and Bullhead City exist in less than pristine desert surroundings, and their development and promotion involved intensive marketing efforts some years back before they gained acceptance as viable locations for swimming, boating, and water-skiing. Each of these locations was able to provide visitors with enjoyable water-sports experience, and with the growth of the Southern California, Arizona, and Nevada economies, there was sufficient demand to spur intensive development of all these regions.

The Salton Sea, meanwhile, offers a body of water much larger than any of those areas. It is much closer and more highway-accessible to Southern California residents than are Lake Havasu or Bullhead City, and the topography of the Salton shoreline is ideal for widespread development (given, of course, the restrictions and the extent of environmental improvements outline above). Furthermore, state of California population and demographic projections forecast more than enough potential demand growth emerging through the next thirty years to allow development of and widespread use of the Salton Sea shore region, without visible, adverse impact on the economies of Colorado River or Pacific Coastal Range freshwater resorts. There is widespread agreement, then, that the potential for extensive private-sector utilization of the Salton Sea exists should a clean-up project be conducive to that.

SOURCES OF ECONOMIC BENEFITS

In estimating the economic benefits of *improving* Salton Sea conditions, I identify three potential sources: 1) increased real estate values accruing from more favorable Sea Water conditions, 2) increased property tax flows as a result of increased real estate values, and 3) increased sales tax revenues.

It might be argued that Sea shore workers' wages and proprietors'/operators' profits will also rise as a result of increased economic utilization of the Sea. My response is that those benefits are subsumed within the property value enhancements which I estimate. Once successful clean-up of the Sea is secured, economic theory has it that the remaining scarce resource is the land surrounding the Sea. While workers, merchants, and other resources will flock to the Sea as it is developed, in a competitive market, those individuals will receive merely market rates of return on their labors, the same as they would receive in other locales. Any extraordinary returns (economic rents) would accrue to landowners as holders of the "scarce" resource in this instance, and such returns will thus be reflected in land values around the sea shore.

This statement should not be construed as value judgment. I am not saying that land is all that matters. Furthermore, I am not saying that all levies used to finance the clean-up effort should be imposed on Sea shore landowners (although a delineation of the benefits and costs involved does provide some *guidance* towards workable financing sources). All I am saying is that under competitive market conditions, a comprehensive study of the likely increment to land values can be said to capture ancillary economic benefits from commercial and retail activity. So under competitive conditions, my calculations will be

inclusive. Under less than perfectly competitive tourist market conditions, my calculations can be said to (slightly) *understate* the total economic benefits accruing from clean-up.

Keep in mind that this reasoning requires use of property values that capture all commercial/residential benefits. Therefore, I look at *retail*/final market real estate values for small-size lots, rather than wholesale or bulk-lot prices. Per-acre prices for land are much less when the land is sold in multi-acre parcels than when it is sold as improved lots. The higher, retail prices accrue from the extra value-added from infrastructure provisions and other improvements necessary to make the lot commercially or residentially useful. That value-added, in turn, will rise as the commercial and residential viability of Salton Sea land increases with a successful clean-up program, and so it should be incorporated in my calculations. In other words, estimating economic benefits via calculation of prospective property value increments dictates the use of retail land values.

Now, there are two circumstances under which prospective land values will not quite capture all increased economic values. To the extent that landowners have to pay property taxes, property values will rise less than otherwise by the present value of all future increases in property taxes accruing from the Sea clean-up and consequent economic development. Also, to the extent that merchants and shoreline business operators have to pay sales taxes and other levies on their business operations, the rents they are willing to pay landlords for their business property will be less than otherwise, and so the market value of the property will also be less than otherwise by the present value of those future sales taxes. So market prices of property will not capture economic benefits which accrue directly to the government, but they will capture those remaining in the private-sector. My calculations thus estimate increments both to property values and direct tax revenues.

Finally, the benefit estimates are cast in terms of "current" or inflation-adjusted 1997 dollars. Discount rates used to capitalize streams of benefits or costs are chosen in inflation-adjusted terms. It can be generally stated that the estimates in my study are not sensitive to various projections of future inflation.

ESTIMATION OF BENEFITS

In calculating prospective increase in property values, I compare current estimated Salton Sea property values to those currently existing in the competitive areas of Lake Havasu and Bullhead City. My reasoning is that the ambient environmental conditions in those resorts (relatively flat, desert terrain) are more comparable to those of the Salton Sea than would be the mountainous lake areas of Lake Arrowhead or Big Bear Lake in Southern California. Also, economic theory teaches that property values should vary inversely with proximity to major population centers. That is, considering two otherwise comparable plots, the land closer to major population centers should be of higher value. Arrowhead and Big Bear are both closer to and slightly more accessible to the Los Angeles and Riverside-San Bernardino areas than the Salton Sea.

In contrast, however, the Salton Sea is much closer to and much more accessible to Los Angeles-Anaheim, Riverside-San Bernardino, and San Diego than either Colorado River resorts (Lake Havasu and Bullhead City). Given a suitable clean-up, then, the Salton Sea shore area would have the potential to achieve higher property values than are occurring in those regions. I thus use the current property values in those areas as potential benchmarks for Salton Sea property. Again, while economic theory would predict a higher value for Salton Sea property in the event of clean-up, to keep my results conservative, I allow only for Salton Sea property values to rise to levels in some cases comparable to those in Lake Havasu and Bullhead City. For prime real estate, I generally estimate potential values on the Salton Sea at only about half of current values on the Colorado River. These "conservative" estimates still find a potential increment to property values of

\$2.165 billion (for the limited area around the Sea shore covered in my study). (Details of these calculations and others are presented in my full report.)

Under existing California law (Proposition 13), such enhanced property values would eventually be taxed at a rate of 1% per year, once the lands were re-assessed following sale or other transfer. Assuming a 10% per year "turnover" in property once development intensifies and using a 3.5% inflation-adjusted discount rate to capitalize inflation-adjusted tax flows results in a conclusion that a "present value" of \$618 million of additional property tax flows can be expected to accrue in the event of clean-up.

Finally, intensive economic development of the sea would generate substantial retail activity around the shore. Also, elsewhere, the state of California has projected the potential *future* population of the Salton Sea community at 45,000, which estimate looks conservative given the potential of the region in the event of a successful clean-up. Assuming both such population growth and per-capita retail activity levels consistent with those in surrounding Southern California resort areas implies potential incremental taxable sales activity of \$915.8 million per year, resulting in an increment of \$68.5 million per year to sales tax revenues. The present value of such flows in perpetuity amounts to \$1.958 billion.

These three elements sum to a total economic benefit of \$4.581 billion from improvement of Salton Sea conditions from their current state to a state conducive to widespread economic development.

In addition, **my calculations also estimate the benefits/costs of preventing further pollution to be between \$3.391 billion and \$5.691 billion.** (These benefits/costs of preventing further deterioration are estimated in the text of my report alternatively via an "annualization" of the benefits already estimated and also via a brief consideration of the costs of filtering run-off water to remove salinity and contaminants.)

BENEFITS TO FULLY ACCRUE AT SOME FUTURE DATE

These benefits are calculated in terms of a present, capitalized value. It should be understood, of course, though, that that "present value" will not begin to accrue until clean-up of the Sea has progressed to the point where economic development of the Sea becomes economically practical, and the full benefits will not accrue until some time after that. So those "present values" are calculated as of the date that full economic utilization of the Sea has occurred, and some discounting of that amount to a truly present value should be made in order to compare it to the costs that will need to be incurred presently in order to effect clean-up. The benefits of preventing further deterioration, though, would accrue immediately once a clean-up project is under way.

My calculations did attempt to cast benefits into truly present value terms. Under assumptions that the benefits of improving Sea conditions do not accrue for fifteen years, the present value of the total benefits of a successful clean-up would still total some \$6.076 billion.

THE EFFICACY OF VARIOUS CLEAN-UP PROJECTS

My study did not advocate any specific method of clean-up of the Salton Sea. Also, while I have estimated the economic developmental benefits of a successful clean-up, there is no presumption that such development *should* occur or that clean-up should be effected in order to expedite that development. It could well be that Congress envisions and directs a clean-up effort that provides only for the preservation of wildlife refuges and habitats or agricultural uses and not for human recreational use at all.

With respect to the various clean-up methods, I would caution only that care be used in attributing the

economic benefits I have estimated to specific proposals, as the scope of results of particular projects may not be consistent with the assumptions summarized above. Again, my estimates assume that a clean-up is successful in restoring the environmental quality of the Sea to a level where it is fully competitive with other water-sports recreational areas. Any project which does not achieve those conditions cannot logically be expected to deliver the benefits I have estimated.

Thus, there should be some question concerning the applicability of my estimates to clean-up methods involving only impoundment of large surface areas of the Sea. My understanding of the technical properties of such plans is that while they would allow achievement of reduced salinity and pollution levels in Sea waters outside the impoundment area, the concentration of salt, nutrients, and pollutants within the impoundment area might still be a source of odor and bird kills which could inhibit commercial development of the rest of the Sea. The restricted use of such a large portion of the Sea (up to 50 square miles, as well as possible surrounding causeways) could also detract from the scenic and boating utility of the Sea and thus also detract from possible private-sector utilization. It should also be considered whether location of the impoundment area would detract from development of specific parcels designated in my study as developable.

Similar comments could be made about other specific clean-up proposals. It may be indeed that no feasible clean-up proposal could achieve the environmental quality necessary for the intensive utilization of the Sea contemplated in my estimates. That is a technical question beyond my expertise. Whether impoundment, pump-in/pump-out, or other alternatives can deliver the environmental prerequisites underlying my calculations is an answer that physical scientists will have to answer. My point is only that the full benefits I have estimated should not be imputed to or associated with a clean-up proposal that does not have a realistic prospect of facilitating such benefits. There is, then, an issue for further research as how extensive are the economic benefits that could be expected to accrue from each specific proposal.

EFFECTS ON FARMERS, RESIDENTS, AND TOURISTS

My study has been seen by some as anti-farmer, because it suggests that a levy be considered on agricultural- and waste-water contributors to the Sea to offset the clean-up costs necessitated by deposits of salt, contaminants, etc. borne by those waters. However, in the very passage in the study where I mention such levies, I also state that they should be offset by the economic value of the water content which carries those deposits. That is, besides clean-up, the survival of the Sea also depends on the securing/maintenance of a water source in the magnitude of 1.3 million acre-feet per year. It may well be that the economic costs of removing pollutants from current agricultural- and waste-water run-off is less than the economic value of the water itself, in which case my analysis would actually suggest compensating farmers (for water value less incremental clean-up costs) to continue their run-off.

This is an empirical question, and I don't claim to now know the answer one way or the other. I bring up the issue not because I am pro-farmer or anti-farmer, but because the economics of the issue indicates that wherever possible, the costs of the Salton Sea clean-up should be borne by the beneficiaries of the clean-up and/or by those who cause the "problem" in the first place. As I state elsewhere in my report, the Salton Sea is an odd situation in which the "cause" of its problem--water drainage--is also the reason for the Sea's existence in the first place.

All parties involved appear to agree that the Sea as it now stands is an asset which must be preserved. That can only mean that ***the agricultural- and waste-water run-off of the last seventy years has provided a net benefit to the region***: that the accumulated benefits arising from the provision of that water exceed the

accumulated costs of the accompanying pollution. How the consideration of such a fact can be judged to be anti-farmer is a mystery to me.

At the same time, three listed, possible funding sources in my report would inevitably be borne by residential and commercial residents of the Sea, and these would almost surely comprise the bulk of private-sector funding of the clean-up. I would not expect Salton Sea residents to be any happier about the prospects of their paying for the clean-up than the farmers are by the prospects of a potential water run-off levy (which levy may turn out to be a subsidy).

In conclusion, my study finds that substantial benefits would accrue from successful clean-up of the Sea. It is fatuous to believe that such benefits can be achieved without substantial costs. Such costs, in turn, must be borne by someone, and no private party is going to gladly shoulder a sizable share of the clean-up costs.

The government and most likely the Federal government is absolutely required to exercise leadership in pushing the Salton Sea clean-up to fruition. It is also likely that government financing of up-front costs will be necessary. However, economic logic dictates that the involved local parties eventually bear the costs of maintaining the Salton Sea project, as well as the costs of servicing and retiring debt incurred during the initial stages of the project. My study indicates that sufficient funds can be mobilized to pay these costs. The actual mobilization, though, is a task of no small magnitude.

#